

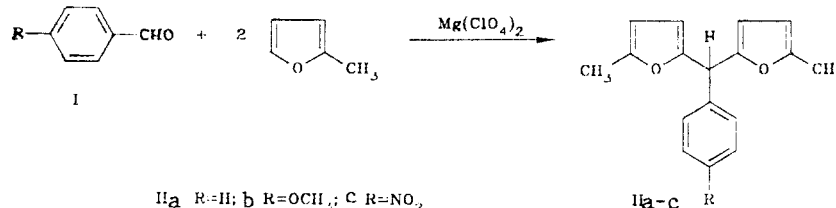
MAGNESIUM PERCHLORATE — A NEW CATALYST FOR THE SYNTHESIS OF DIFURYLARYLMETHANES

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Sulfuric acid [1, 2] and perchloric acid [3] have been proposed as catalysts for the synthesis of difurylarylmethanes. In such cases the reaction is accompanied by noticeable resinification.

We have found that in the presence of catalytic amounts of magnesium perchlorate difurylarylmethanes IIa-c are formed in 60-75% yield.



The use of this catalyst in the condensation of acidophobic alkylfuranones with aromatic aldehydes (I) enables us to avoid resinification and so facilitate the separation of the reaction products.

2-Methylthiophene does not react with aldehydes even with catalysis by magnesium perchlorate.

Difurylarylmethanes (IIa-c). To a solution of 0.1 mole of aromatic aldehyde in 80 ml of benzene is added 0.02 mole of magnesium perchlorate. The mixture is brought to boiling and 0.25 mole of 2-methylfuran is added dropwise. The mixture is boiled until the separation of water ceases, then it is cooled, filtered, washed with 5% soda, and dried with Na₂SO₄. After the solvent is removed, the residue is suitable for further use.

Phenyldi(5-methyl-2-furyl)methane (IIa, C₁₇H₁₆O₂). Bp 160-163°C (4 mm Hg). PMR spectrum (in CCl₄): 2.11 (6H, s, CH₃), 5.16 (1H, s, CH), 5.68 (4H, s, furyl), 7.08 ppm (5H, s, arom.).

4-Methoxyphenyldi(5-methyl-2-furyl)methane (IIb, C₁₈H₁₈O₃). Mp 61-62°C (from hexane). PMR spectrum (in CCl₄): 2.13 (6H, s, CH₃), 3.64 (3H, s, OCH₃), 5.09 (1H, s, CH), 5.66 (4H, s, furyl), 6.65 (2H, d, J_{o-m} = 8 Hz, o-H), 7.02 ppm (2H, d, J_{o-m} = 8 Hz, m-H).

4-Nitrophenyldi(5-methyl-2-furyl)methane (IIc, C₁₇H₁₅NO₄). Mp 82-83°C (from hexane). PMR spectrum (in CCl₄): 2.18 (6H, s, CH₃), 5.28 (1H, s, CH), 5.78 (4H, s, furyl), 7.30 (2H, d, J_{o-m} = 9 Hz, o-H), 8.05 ppm (2H, d, J_{o-m} = 9 Hz, m-H).

The elemental composition agreed with the calculated values.

LITERATURE CITED

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3. S. V. Zhuravlev and V. G. Kul'nevich, *Khim. Geterotsikl. Soedin.*, No. 5, 597 (1983).